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Claims

1. An anti-annexin antibody or fragment thereof, wherein the antibody or fragment is capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.
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2. The antibody fragment according to claim 1 wherein it is a Fab or F(ab')₂ fragment.
- 10 3. The antibody or fragment according to any one of the preceding claims, wherein it is a monoclonal antibody or fragment thereof.
4. The antibody or fragment according to any one of the preceding claims, wherein it is labeled.
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5. The antibody or fragment according to claim 4, wherein the label is an effector molecule, a toxic substance or a radioactive substance.
- 20 6. A pharmaceutical composition, comprising as the active ingredient an antibody or fragment thereof capable of specifically binding to an annexin present on a cell that is undergoing apoptosis .
7. Use of an anti-annexin antibody or fragment thereof for the detection and/or monitoring of apoptosis, *in vitro*, *ex vivo* or *in vivo*.
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8. Use of an anti-annexin antibody or fragment thereof for modulating an immune response.
- 30 9. Use of an anti-annexin antibody or fragment thereof for inducing and/or increasing an inflammatory response.

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10. Use of an anti-annexin antibody or fragment thereof for targeting tumor cells and/or tumor tissue.
- 5 11. Use of an anti-annexin antibody or fragment thereof for inducing an inflammatory response to tumor cells.
12. Use of an anti-annexin antibody or fragment thereof for blocking the development of tolerance against tumor cells.
- 10 13. Use of an anti-annexin antibody or fragment thereof for the production of an agent for the diagnosis and/or treatment of diseases linked to apoptosis.
14. Use of claim 13, wherein the diseases linked to apoptosis are selected from the group consisting of cancer, diabetes, autoimmune diseases and cardiovascular and vascular diseases.
- 15 15. Use of claim 14, wherein the autoimmune disease is diabetes, rheumatoid arthritis, lupus erythematosus or multiple sclerosis.
- 20 16. Use of any one of claims 7 to 15, wherein the anti-annexin antibody is labelled.
- 25 17. Use of claim 16, wherein a labelled anti-annexin antibody is used for the production of a diagnostic agent for the detection of tumor cells after or during conventional cancer therapy.
18. Use according to anyone of claims 1-17, wherein the anti-annexin antibody is specific for annexin I, annexin II, annexin IV, or annexin V.
- 30 19. A method for detecting and/or monitoring apoptosis comprising:

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(i) providing a sample to be analysed, comprising cells;
(ii) detecting an annexin present on the surface of said cells by adding a substance capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.

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20. The method of claim 19, wherein the substance of step (ii) is an antibody or fragment thereof capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.

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21. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent for inhibiting an inflammatory response.

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22. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent for the diagnosis and/or the treatment of a disease linked with apoptosis and/or cell death and/or inflammation.

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23. Use according to claim 22, wherein the disease is selected from the group consisting of a ischaemic reperfusion damage, stroke, chronic heart failure, myocardial infarction, spinal cord injury, acute liver failure, renal ischaemia, neurodegenerative diseases such as Alzheimer, Parkinson's disease, sepsis, HIV-infection and autoimmune diseases, in particular multiple sclerosis.

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24. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent to inhibit an inflammatory response to tissue, in particular transplantation tissue.

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25. Use according to anyone of claims 21-24, wherein the annexin used is annexin I, annexin II, annexin IV or annexin V.